

Summary of Findings



➤ **Public Lighting - Conduit Duct Infrastructure**

The City of Detroit has supported a sophisticated communications and lighting infrastructure for many years. Much of that communications and lighting infrastructure was routed through an elaborate conduit duct system. Currently, there is some abandoned police and fire communications cable which supported police and fire call boxes in the past. In addition, some telecommunications carriers and Comcast cable also occupy some duct capacity.

Although some duct capacity is occupied by either abandoned cable or other communications carriers, it appears spare capacity exists in other channels of the conduit system. The conduit duct system parallels the routes of major streets and highways and surrounds the downtown area. As the infrastructure extends out into the City, much of the cable for public lighting and traffic lights routes aerial on Detroit Edison and Ameritech poles.

There has been limited use of the duct system by the City for fiber optic connectivity. There exists tremendous potential to provide connectivity in the downtown area to each City-owned building through the conduit duct system.

Data Network Environment Assessment



Systems Overview

Presently, the City supports several wide area network configurations; following is a summary of each:

➤ Detroit Resource Management System (DRMS)

This is the standard data network for interconnecting Local Area Networks (LANs) in each department. Much of this network was built as part of the DRMS project, which presently connects 184 sites. However, several portions of the network were built outside of the DRMS project and these ancillary networks are now interconnected with DRMS to form an enterprise network. This enterprise network will be referred to as the DRMS network in this report. It allows access to the mainframe for newer applications, also access to file servers, E-mail, and Internet access. A diagram depicting this network is located on the following page.

• Network Architecture

This network originates from the Coleman A. Young Municipal Center Computer Room and connections are made in a star configuration to 10 major buildings. These 10 buildings are also inter-connected in a ring configuration for redundancy, acting as aggregation points to provide connections to the other 173 sites. Private fiber is used to connect to the Police Headquarters and the Water and Sewerage Department to the Municipal Center and they are not included in the redundancy ring. Due to design differences between the department and its network, the Water and Sewerage Department has a 11Mb wireless connection between the Municipal Center and the Water Board Building, which provides redundancy. A new fiber has been installed that connects the Municipal Center to Cadillac Tower, through the Water Board Building, to replace the unreliable leased lines. A T-3 connects the Water and Sewerage Department to the Municipal Center to maintain real time synchronized data on the CNT systems. The Police Department has a redundant T-1 to PLD. This network has many redundant leased connections between buildings, often using the same path. The Water and Sewerage Department uses three wireless connections to provide diverse routing for redundant connections. Presently, the Health Department uses the State of Michigan network for transporting data between sites, however, the City may eventually be required to provide this connectivity. The fiber and leased lines enter through the same room in the Municipal Center.

Data Network Environment Assessment



Systems Overview

➤ Supervisory, Control, and Data Acquisition

The Supervisory Control and Data Acquisition System (SCaDA) is a control network for power substations, water distribution, sewer systems, and traffic systems. The communication lines for the radio towers operate similarly, so they will be included with this group. These networks are simple, with little data to transport, however, they are mission critical. Incorrect signaling to these devices could result in serious damage to the power, water, sewer, radio communications, or traffic systems. At one time, these systems primarily used dedicated cable in the Public Lighting Department (PLD) conduit system. However, over time, most of these systems were converted to use Ameritech leased analog circuits. The Water and Sewerage Department has systems that extend beyond the City, therefore requiring leased facilities for communication. The Water and Sewerage Department is considering a new Radio Communications System.

➤ Mainframe Controller

This is a point-to-point mainframe data network that connects the Unisys controllers to the mainframe. This network primarily supports two legacy applications that require dedicated terminals - the payroll system and a police dispatch system. This network connects to every police precinct and firehouse for dispatch services and provides access to the Michigan State Police Law Enforcement Information Network (LEIN). It also connects to City buildings to provide access to the payroll system. At one time, it was used by many legacy applications that have been eliminated as a result of Y2K efforts or have been rewritten to allow LAN user access. As a result, it is possible there are many connections on this network that may not be in use.